

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

A45NM
Revision 5
AvCraft Aerospace GmbH
Dornier Model 328-100
March 2, 2004

FAA TYPE CERTIFICATE DATA SHEET NO. A45NM

This data sheet which is part of Type Certificate No. A45NM prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the US Federal Aviation Regulations.

Type Certificate Holder AvCraft Aerospace GmbH
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Dornier 328-100 (Transport Category Airplane) approved November 10, 1993

Note: Major Modification "Mod 10" was approved November 3, 1994. Major Modification "Mod 20" was approved August 5, 1996. Pre "Mod 10" airplanes are designated by Dornier as "Mod 00." Type Design Definition Document TD-00300 is the basis for the definition of the type design. The information in this data sheet applies to all Dornier 328-100 airplanes, unless otherwise noted.

Engines 2 Pratt and Whitney of Canada Ltd. PW 119B turboprops. Refer to engine FAA-Type Certificate E20NE.

Mod 10: Same engines as the basic model.

Mod 20: Two (2) Pratt and Whitney of Canada Ltd. PW 119C. Refer to engine FAA Type Certificate E20NE

Fuel (a) Specifications:
 ASTM (D 1655) Jet A
 ASTM (D 1655) Jet A1
 ASTM (D 1655) Jet B
 ASTM (D 1655) Jet A-2

(b) Additives:
According to latest version of Dornier 328 Aircraft Maintenance Manual.

Oil Types of approved oils for use in PW 100 engines are:
 - 5 Centistoke oils (conforming to specification PWA 521, Type II).
 4 Centistoke oils.
 - Third generation oils.

The following engine limits table applies to the Mod 00 airplane only.

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Engine Limits (Mod 00 airplane only):

Conditions	Operating Limits							
	POWER	TQ	ITT	RPM	RPM	RPM	OIL	OIL
	% TQ at % N _p	(%)	°C	High Press Rotor N _H (%)	Low Press Rotor N _L (%)	Prop N _p (%)	Oil Press PSID	Oil Temp °C (8)
BEST PERF TAKEOFF(1)	100 at 100	100	800	102.7	104.4	102.5	55 to 65	0 to 115
MAX CONT. OPER. (2)	85 at 100	100	800	102.7	104.4	102.5	55 to 65	0 to 115
GND IDLE	-	-	-	min 64	-	-	min 40 (3)	-54 to 115
STARTING	-	-	950 (4)	-	-	-	200	min -54
TRANSIENT (5)	-	120	850	104.2	105.9	110	40 to 100	-
OTHER	-	-	-	-	-	110 (7)	-	125 (6)

Table references:

- (1) Operation is limited to 5 minutes.
- (2) Power limit is 1851 SHP. Operation between 85% and 100% TQ with N_p below 100% is not time limited provided the power limit is not exceeded. (Refer to Power Torque Setting Charts in Airplane Flight Manual (AFM) Section 6 - Performance).
- (3) Up to 75% N_H only.
- (4) 5 seconds maximum starting only.
- (5) 20 seconds maximum.
- (6) 20 minutes maximum.
- (7) In case of a propeller or propeller governor malfunction the flight can be completed with the indicated N_p speed. Power must be set not to exceed 75% torque.
- (8) Under icing conditions oil temperature must be maintained above 45°C to ensure intake strut deicing.

Mod 10; Mod 20: The following engine limits table applies to the Mod 10 and Mod 20 airplanes.

Engine Limits (Mod 10 and Mod 20 airplanes):

Conditions	Operating Limits							
	POWER	TQ	ITT	RPM	RPM	RPM	OIL	OIL
	% TQ at % N _p	(%)	°C	High Press Rotor N _H (%)	Low Press Rotor N _L (%)	Prop N _p (%)	Oil Press PSID	Oil Temp °C (7)
BEST PERF TAKEOFF(1)	100 at 100	100	800	102.7	104.4	102.5	55 to 65	0 to 115
MAX CONT. OPER.	85 at 100 100 at 85 or below	100	800	102.7	104.4	102.5	55 to 65	0 to 115
GND IDLE	-	-	-	min 64	-	-	min 40 (2)	-54 to 115
STARTING	-	-	950 (3)	-	-	-	200	min -54
TRANSIENT (4)	-	120	850	104.2	105.9	110	40 to 100	-
OTHER	-	-	-	-	-	110 (6)	-	125 (5)

Table references:

- (1) Operation is limited to 5 minutes duration, but may be used up to 10 minutes for single engine operation.
- (2) Up to 75% N_H only.
- (3) 850° C to 950° C for 5 seconds maximum.
- (4) 20 seconds maximum.
- (5) 20 minutes maximum.
- (6) In case of a propeller or propeller governor malfunction maximum power is 75% torque provided N_P does not exceed 110%.
- (7) Under icing conditions oil temperature must be maintained above 45° C to ensure intake strut deicing.

Propellers and Propeller LimitsMod 00: 2 Hartzell six bladed HD-E6C-3A

Diameter: 11 ft 6 in (3.5 m). Refer to propeller FAA-Type Certificate P34NE

Mod 10, Mod 20: 2 Hartzell six bladed HD-E6C-3B. Diameter: 11 ft 10 in (3.6 m). Refer to propeller FAA-Type Certificate P34NEMod 10, Mod 20: For propeller limits table refer to AFM 02-06-00, Page 2, April 25, 1996.Airspeed Limits (I.A.S.)

V_D		324 KIAS
V_{MO}		270 KIAS
MMO		.59 (above 20,000 feet pressure altitude)
V_A (Maneuvering) (Mod 00)		170 KIAS
V_A (Maneuvering) (Mod 10, 20)		180 KIAS
V_{FE} (Flaps Extended)	12°	200 KIAS
	20°	180 KIAS
	In addition for <u>Mod 10, 20:</u>	32° 160 KIAS
V_{MC} (Minimum Control)		Refer to AFM
$V_{LE} = V_{LO}$		200 KIAS
Tire Speed		165 KIAS
Windshield wiper operating speed		166 KIAS

Datum

The aircraft reference zero datum point is located 375.39 in. forward of the fuselage frame 23, 98.425 in. under the fuselage centerline and the aircraft buttock line.

Leveling Means

Plumb line in rear open and latched baggage door.

Weight and Center of Gravity Limits: The following weight and center of gravity limits apply to the Mod 00 airplane only.

	WEIGHT	CENTER OF GRAVITY LIMITS		
		Forward Limit		Rear Limit
		Flight	Takeoff/ Landing	MAC ARM
		MAC ARM	MAC ARM	
MIN. FLIGHT WEIGHT	9,600 kg 21,164 lb	14.0 % 9.663 m 380.44 in	16.0 % 9.704 m 382.04 in	
up to WEIGHT	11,000 kg 24,251 lb	14.0 % 9.663 m 380.44 in		
up to WEIGHT	10712 kg 23616 lb		16.0 % 9.704 m 382.04 in	
connected by line up to MAX. ZERO FUEL WEIGHT	12,260 kg 27,029 lb	16.4 % 9.711 m 382.34 in	19.5 % 9.776 m 384.87 in	
				40.0 % 10.193 m 401.29 in

(cont'd)

	WEIGHT	CENTER OF GRAVITY LIMITS		
		Forward Limit		Rear Limit
		Flight	Takeoff/ Landing	MAC ARM
		MAC ARM	MAC ARM	
connected by line up to MAX LANDING WEIGHT	13,230 kg 29,167 lb	17.9 % 9.742 m 383.55 in	21.3 % 9.812 m 386.31 in	
connected by line up to MAX. TAKEOFF WEIGHT	13,640 kg 30,071 lb	18.5 % 9.754 m 384.01 in	22.0 % 9.826 m 386.85 in	
connected by line up to MAX. RAMP WEIGHT	13,720 kg 30,247 lb		22.1 % 9.829 m 386.96 in	

Note 1: The limits are valid for the allowable flap positions corresponding to the flight speeds for takeoff, climb, cruise, approach, and landing. The envelope may be limited for operational conditions due to "In-Flight Movement." Note that takeoff and landing have different limits than the flight limits.

Note 2: 0% MAC is located 369.213 in. from the datum line.
100% MAC is located 80.197 in. from 0% MAC.

Weight and Center of Gravity Limits: The following weight and center of gravity limits apply to the Mod 10 and Mod 20 airplanes.

	WEIGHT	CENTER OF GRAVITY LIMITS			
		Forward Limit		Rear Limit	
		Flight	Takeoff & Landing	Takeoff & Landing	Flight
		MAC ARM	MAC ARM	MAC ARM	MAC ARM
MIN. FLIGHT WEIGHT	9,400 kg 20,724 lb	14.0 % 9.663 m 380.44 in	16.0 % 9.704 m 382.04 in	40.0 % 10.193 m 401.29 in	44.0 % 10.274 m 404.50 in
up to WEIGHT	10,712 kg 23,616 lb	14.0 % 9.663 m 380.44 in	16.0 % 9.704 m 382.04 in		
up to WEIGHT	11,000 kg 24,251 lb				
connected by line up to MAX. ZERO FUEL WEIGHT	12,610 kg 27,800 lb	16.9 % 9.723 m 382.80 in	20.2 % 9.790 m 385.42 in		
connected by line up to MAX LANDING WEIGHT	13,230 kg 29,167 lb	17.9 % 9.742 m 383.55 in	21.3 % 9.812 m 386.31 in		
connected by line up to MAX. TAKEOFF WEIGHT	13,990 kg 30,843 lb	18.9 % 9.763 m 384.39 in	22.5 % 9.837 m 387.30 in		
connected by line up to MAX. RAMP WEIGHT	14,070 kg 31,019 lb		22.7 % 9.840 m 387.39 in		

Note 1: The limits are valid for the allowable flap positions corresponding to the flight speeds for takeoff, climb, cruise, approach, and landing. The envelope may be limited for operational conditions due to "In-Flight Movement." Note that takeoff and landing have different limits than the flight limits.

Note 2: 0% MAC is located 369.213 in from the datum line.
100% MAC is located 80.197 in. from 0% MAC.

Minimum Crew 2 - Pilot and copilot

Maximum Passengers 33
Front row passenger seats must be equipped with integral three-point safety harnesses (reference change notice CN-00281, dated February 21, 1995)

Type of Baggage Compartment Class "D" Compartment

Maximum Baggage Total of 1653 lbs (750 kg) in the rear baggage compartment
- 882 lbs (400 kg) in the forward part
- 771 lbs (350 kg) in the aft part
- max. floor loading = 75 lb/ft²

Fuel Capacity 7531 lbs usable (gravity refueled)
7300 lbs usable (pressure refueled)

Oil Capacity Oil capacity per Engine (incl. Propeller Oil System)

	TOTAL OIL TANK	MIN to MAX ON SIGHT GLASS	TOTAL OIL SYSTEM
US Gallons	4.70	0.75	5.60
Liters	17.70	2.84	21.00

Maximum Operating Altitude 31,000 ft.

<u>Control Surface Movements</u>	Wing Flaps	12° and 20° (Mod 00)
	Wing Flaps	12°, 20°, and 32° (Mod 10, 20)
	Ailerons	30° up ($\pm 1^\circ$), 25° down ($+1^\circ$)
	Elevator	30° up (-2°), 25° down (-1°)
	Stabilizer	fixed
	Rudder	18° right, 16° left (Mod 00)
	Rudder	24° right ($+1^\circ$), 20° left (-1°) (Mod 10, 20)

Certification

Maintenance Requirements CMR's are listed in Certification Maintenance Requirements Document TM-CMR-010793-ALL.

Airplane Flight Manual Refer to AM-AFM-050893-ENV.

Weight & Balance Manual Refer to TM-WBM-190793-ALL.

Service Information Service bulletins, repair instructions (letters, drawings, specifications, forms used for transmitting repair descriptions, etc.), structural repair manuals, airplane flight manuals, vendor manuals, and overhaul and maintenance manuals that are published in the English language and indicate applicability to the U.S. approved type designs included in this Type Certificate and that include a statement "LBA Approved" are accepted by the FAA and are considered "FAA Approved."

Additionally, Dornier as an LBA Approved Design Organization has been given authorization by the LBA to approve Service Bulletins, including special types (Alert Service Bulletin, All Operator Telefax, Engineering Order). Accordingly, Service Bulletins and repair instructions which contain a statement such as "This Service Bulletin is approved under the authority of LBA approved design organization No. LBA.JA.002" are considered LBA approved and are therefore accepted by the FAA and are considered FAA approved.

Certification Basis

Mod 00: FAR Part 25 Effective February 1, 1965, including Amendments 25-1 through 25-61, plus Amendments 25-62, -63, and -64, which were requested to be added to the Certification Basis by Dornier, with the exception of Sections 25.21(b) and 25.205 (removed from Part 25 by Amendment 25-72). In addition, the following paragraphs apply:

Section 25.571(e)(3) as amended by Amendment 25-72, effective August 20, 1990, and Section 25.905(d), as amended by Amendment 25-72.

Section 25.729(e)(2) as amended by Amendment 25-75, effective November 26, 1991.

Section 25.365 as amended by Amendment 25-71, effective April 10, 1990.

FAA Special Condition 25-ANM-76 dated August 31, 1993 (Lightning and HIRF).

FAA Grant Of exemption No. 5785 regarding Section 25.161(d), granted November 5, 1993.

Equivalent Level of Safety Finding for flight crew top hatch emergency exit markings (FAR 25.811(f))

Dornier elected to comply with the following optional requirement: Section 25.1419 for icing.

FAR Part 36 effective December 1, 1969, including Amendments 36-1 through 36-20.

FAR Part 34 effective September 10, 1990. SFAR 27-5 has been recodified as FAR Part 34, which is intended to continue the enforcement of 40 CFR Part 87 and make Part 34 a permanent part in the FAR's.

Mod 10, Mod 20: The certification basis for the Mod 10 and Mod 20 airplanes is the same as for the basic Mod 00 airplane.

Limitations

Airworthiness Limitations including structural inspections and retirement times for safe-life parts are listed in Dornier Airworthiness Limitations Document TM-ALD-010693-ALL.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see the Certification Basis) must be installed in the aircraft for certification.

Serial Numbers

Mod 00: 3006 through 3030. All former Mod 00 airplanes are modified to Mod 10 in accordance with Service Bulletin SB 328-00-053

Mod 10: Production aircraft manufactured to the Mod 10 configuration begin at serial number 3031 and subsequent. Previous serial number aircraft are eligible to operate to the Mod 10 specifications if service bulletin SB328-00-053 is installed.

Mod 20: Mod 20 aircraft are produced by incorporation of Service Bulletin SB 328-00-175.

Import Requirements

To be considered eligible for operation in the United States, each aircraft manufactured under this type certificate must be accompanied by a certificate of airworthiness for export or certifying statement endorsed by the exporting foreign civil airworthiness authority which states (in the English language): This aircraft conforms to its U.S. Type Design (Type Certificate No. A45NM) and is in a condition for safe operation.

NOTESNOTE 1.

Effective June 15, 2000, Dornier Luftfahrt GmbH was renamed to Fairchild Dornier GmbH. The new name will appear as of this date on all documents. However, documents bearing the old name will remain valid and will be updated when and where necessary.

NOTE 2.

Effective July 28, 2003, Fairchild Dornier GmbH was renamed to AvCraft Aerospace GmbH. The new name will appear as of this date on all documents. However, documents bearing the old name will remain valid and will be updated when and where necessary.

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